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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,673	11/25/2003	Dennis J. O'Rear	005950-739	6252

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BURNS DOANE SWECKER & MATHIS L L P
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER	
PARSA, JAFAR F	

ART UNIT	PAPER NUMBER
1621	

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/720,673	O'REAR ET AL.	
	Examiner	Art Unit	
	Jafar Parsa	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *18-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/1/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-17, drawn to a process for the conversion of syngas, classified in class 518, subclass 700.

II. Claims 18-20, drawn to a gas to liquid facility, classified in class 422, subclass various.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be practiced with a gas to liquid facility as disclosed in US patent No. 6,512,018.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with Ms. Hayworth on 2/8/2005 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-17. Affirmation of this election must be made by applicant in replying to this Office action. Claims 18-20 are

withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kennedy (USPN 6,512,018 B2) in view of Mysov et al (RU 2089533)

Applicants' claimed invention is directed to a process for the conversion of syngas using a Fischer-Tropsch reactor comprises reacting at least a portion of a first syngas in a first Fischer-

Tropsch reactor to form a first hydrocarbonaceous product and a second syngas. The second syngas is mixed with a H2-containing stream to form an adjusted syngas. At least a portion of the adjusted syngas is reacted in a dual functional syngas to form a second hydrocarbonaceous product and a third syngas comprising a reduced amount of carbon dioxide than was present in the adjusted syngas.

Kennedy teaches a Fischer-Tropsch-based process and system for converting light hydrocarbons into heavier hydrocarbons uses a plurality of different synthesis gas generators. The process includes preparing a first synthesis gas having a H_2:CO ratio greater than 2:1; removing a portion of the hydrogen (membrane separation) from the first synthesis gas; preparing a second synthesis gas with a CO.sub.2 recycle wherein the second synthesis gas has a H.sub.2 :CO ratio less than 2:1; adding the removed hydrogen to the second synthesis gas to increase the H.sub.2 :CO ratio of the second synthesis gas; and using a Fischer-Tropsch reaction to convert the first synthesis gas and the second synthesis gas to heavier hydrocarbons (see abstract). Kennedy teaches that the first hydrocarbon synthesis reactor produces a first tail gas (unreacted carbon oxides, hydrogen and light hydrocarbons), which the third synthesis gas is generated from the first tail gas for recycling to the first synthesis gas unit. The third syngas apparently contains less carbon dioxide than the second synthesis gas. The second hydrocarbon synthesis reactor produces a second tail gas, which is delivered to a carbon dioxide removal unit to remove all or portion of carbon dioxide the removed carbon dioxide is delivered to the second synthesis gas subsystem 16 (see col. 3, lines 32-35 and col. 5, lines 15-21). Kennedy does not expressly disclose the ratio of hydrogen to carbon oxides. However, since Kennedy's first and second synthesis gas are produced in the same manner as described in the instant claimed

invention one would have expected that Kennedy's process also have the same range of hydrogen to carbon oxides ratio, and also first and the second synthesis gas streams contain at least the same or more than 2 volume % carbon dioxide. In addition, the carbon dioxide conversion in Kennedy's process is well within the carbon dioxide conversion range disclosed in the instant claimed invention.

Kennedy discloses that numerous catalysts have been used in carrying out the Fischer-Tropsch reaction. Usually a Group VIII metal, such as cobalt, iron, or ruthenium, is used. Both saturated and unsaturated hydrocarbons can be produced. The Fischer-Tropsch (F-T) hydrocarbon synthesis reaction carried out at low or medium pressure (i.e. in the range of about atmospheric to 500 psig). See col. 1, lines 40-45 and col. 2, lines 23-27. Kennedy discloses that numerous catalysts have been used in carrying out the Fischer-Tropsch reaction. Usually a Group VIII metal, such as cobalt, iron, or ruthenium, is used. Both saturated and unsaturated hydrocarbons can be produced. See col. 1, lines 40-45.

Kennedy does not teach a dual functional syngas conversion into mixture of hydrocarbons. However, Mysov teaches a dual functional syngas conversion in the presence of a bifunctional catalyst containing zeolite SZM-5(11, 12, 35, 38 has MFI structure) and composite of at least two transitional elements such as copper, zinc and chromium at a temperature of 320-440 C and pressure of 40-100 atmosphere and H2/(CO+CO2) volume ratio of 1-3 into mixture of hydrocarbons (see page 3).

It would therefore have been prima facie obvious to use a bifunctional catalyst for conversion of syngs, in order to obtain a mixture of hydrocarbon naphtha cuts with a high aromatic hydrocarbon content as taught by Mysov et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jafar Parsa whose telephone number is (571)272-0643. The examiner can normally be reached on 8 a.m.-4:30 p.m. (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on (571)272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jafar Parsa
Primary Examiner
Art Unit 1621

JP

February 18, 2005

J. PARSA
PRIMARY EXAMINER
AU: 1621